UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

Reply to
Attn Of: OWW-134

NOV 4 2005

David C. Peeler, Manager
Water Quality Program
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Department of Ecology
Water Quality Program
NOV 07 2005

Re: Approval of Washington State Final Integrated Report 2002/2004 (303(d) List and 305(b) Report) submitted for approval June 2, 2004

Dear Mr. Peeler:

The Environmental Protection Agency (EPA) has conducted a complete review of Washington's 2002/2004 Section 303(d) List and supporting documentation and information. Based on this review, EPA has determined that Washington's list of water quality limited segments (WQLSs) still requiring TMDLs meets the requirements of Section 303(d) of the Clean Water Act ("CWA" or "the Act") and EPA's implementing regulations. Therefore, EPA hereby approves Washington's Section 303(d) List. The statutory and regulatory requirements, and EPA's review of Washington's compliance with each requirement, are described in the attachment to this letter.

Ecology submitted their final 2002/2004 303(d) List, including a response to public comments, a final list methodology, a priority ranking and an Integrated Report on the status of Washington's waters, to EPA on June 2, 2005. EPA received Washington's 303(d) List as a hard copy on June 3, 2005. EPA is acting only on the waters listed in Category 5 of the Integrated Report which constitutes the 303(d) List.

The public participation process sponsored by the Department of Ecology included public hearings around the state, solicitations of public comments and preparation of a responsiveness summary explaining how the State considered public comment in the final listing decisions.

We recognize and appreciate the excellent work of staff and managers at Ecology in developing the final 2002/2004 § 303(d) List. We look forward to continuing to work with you on this process to address the water quality issues in the state. If you have any questions please contact Lisa Jacobsen of my staff at (206) 553-6917 or Christine Psyk, Manager, Watershed Unit at (206) 553-1906

Sincerely,

Michael F. Gearheard, Director
Office of Water and Watersheds

Enclosure

cc: Susan Braley, Ecology
Ken Koch, Ecology
Melissa Gidersleeve, Ecology

INTRODUCTION

The Environmental Protection Agency (EPA) has conducted a complete review of Washington's 2002/2004 Section 303(d) list and supporting documentation and information and, based on this review, EPA has determined that Washington's list of water quality limited segments (WQLSs) still requiring TMDLs meets the requirements of Section 303(d) of the Clean Water Act ("CWA" or "the Act") and EPA's implementing regulations. Therefore, by this order, EPA hereby APPROVES Washington's Section 303(d) list. The statutory and regulatory requirements, and EPA's review of Washington's compliance with each requirement, are described in detail below.

STATUTORY AND REGULATORY BACKGROUND

I. Identification of WQLSs for Inclusion on Section 303(d) List

Section 303(d)(1) of the Act directs States to identify those waters within its jurisdiction for which effluent limitations required by Section 301(b)(1)(A) and (B) are not stringent enough to implement any applicable water quality standard, and to establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. The Section 303(d) listing requirement applies to waters impaired by point and/or nonpoint sources, pursuant to EPA's long-standing interpretation of Section 303(d).

EPA regulations provide that States do not need to list waters where the following controls are adequate to implement applicable standards: (1) technology-based effluent limitations required by the Act, (2) more stringent effluent limitations required by State or local authority, and (3) other pollution control requirements required by State, local, or federal authority. See 40 CFR 130.7(b)(1).

II. Consideration of Existing and Readily Available Water Quality-Related Data and Information

In developing Section 303(d) lists, States are required to assemble and evaluate all existing and readily available water quality-related data and information, including, at a minimum, consideration of existing and readily available data and information about the following categories of waters: (1) waters identified as partially meeting or not meeting designated uses, or as threatened, in the State's most recent Section 305(b) report; (2) waters for which dilution calculations or predictive modeling indicate nonattainment of applicable standards; (3) waters for which water quality problems have been reported by governmental agencies, members of the public, or academic institutions; and (4) waters identified as impaired or threatened in any Section 319 nonpoint assessment submitted to EPA. See 40 CFR 130.7(b)(5). In addition to these minimum categories, States are required to consider any other data and information that is existing and readily available. EPA's 1991 Guidance for Water Quality-Based Decisions describes categories of water quality-related data and information that may be existing and readily available. See Guidance for Water Quality-Based Decisions: The TMDL Process, EPA Office of Water, 1991, Appendix C ("EPA's 1991 Guidance"). While States are required to evaluate all

existing and readily available water quality-related data and information, States may decide to rely or not rely on particular data or information in determining whether to list particular waters.

In addition to requiring States to assemble and evaluate all existing and readily available water quality-related data and information, EPA regulations at 40 CFR 130.7(b)(6) require States to include as part of their submissions to EPA documentation to support decisions to rely or not rely on particular data and information and decisions to list or not list waters. Such documentation needs to include, at a minimum, the following information: (1) a description of the methodology used to develop the list; (2) a description of the data and information used to identify waters; and (3) any other reasonable information requested by the Region.

III. Priority Ranking

EPA regulations also codify and interpret the requirement in Section 303(d)(1)(A) of the Act that States establish a priority ranking for listed waters. The regulations at 40 CFR 130.7(b)(4) require States to prioritize waters on their Section 303(d) lists for TMDL development, and also to identify those WQLSs targeted for TMDL development in the next two years. In prioritizing and targeting waters, States must, at a minimum, take into account the severity of the pollution and the uses to be made of such waters. See Section 303(d)(1)(A). As long as these factors are taken into account, the Act provides that States establish priorities. States may consider other factors relevant to prioritizing waters for TMDL development, including immediate programmatic needs, vulnerability of particular waters as aquatic habitats, recreational, economic, and aesthetic importance of particular waters, degree of public interest and support, and State or national policies and priorities. See 57 FR 33040, 33045 (July 24, 1992), and EPA's 1991 Guidance.

ANALYSIS OF WASHINGTON'S SUBMISSION

I. Identification of Waters and Consideration of Existing and Readily Available Water Quality-Related Data and Information.

EPA has reviewed the State's submission, and has concluded that the State developed its Section 303(d) list in compliance with Section 303(d) of the Act and 40 CFR 130.7. EPA's review is based on its analysis of whether the State reasonably considered existing and readily available water quality-related data and information and reasonably identified waters required to be listed.

A. Ecology's List Development Process

Washington's 1998 303(d) list was used as the starting point for developing the 2002/2004 303(d) list. Because Ecology combined two lists, the 2002 and the 2004 303(d) lists, two public notices were held at different times. Washington actively sought data collected by other federal agencies (including the U.S. Geological Survey, U.S.

Forest Service and the Bureau of Land Management), state agencies (including Washington Department of Fish and Wildlife), tribes, local governments, watershed councils and private and public organizations and individuals. Washington solicited public comment and held numerous public hearings throughout the state on its draft 303(d) lists, Integrated Reports and its revised list methodology, Water Quality Program (WQP) Policy 1-11.

Ecology prepared a final list of impaired waters using data they collected and data received during the public processes that met QA/QC criteria, consistent with Washington's list methodology, WQP Policy 1-11. Ecology communicated its preferred data collection methods and QA/QC requirements to the public in the draft and final list methodology, which were available in hard copy and on the Internet. Ecology clarified what acceptable data is at its public hearings and in the response to public comments document.

Ecology sent their final 2002/2004 303(d) list, including a response to public comments, a final list methodology, a priority ranking and an Integrated Report on the Status of Washington's waters, to EPA on June 2, 2005. EPA received Washington's 303(d) List as a hard copy on June 3, 2005. An on-line database is also available via Internet at: http://www.ecy.wa.gov/programs/wq/303d/2002/2002-index.html.

B. Public Participation

Ecology has chosen to combine the 2002 Integrated Report (IR) 303(d) list with the 2004 IR 303(d) list and, as a result, announced two calls for data and conducted two public comment periods, one for each listing cycle. Also, Ecology revised their list methodology, WQP Policy 1-11 and held a public comment period prior to the draft IRs.

For the 2002 and 2004 303(d) lists, Washington solicited data from October through December 2002 and from January 15, through March 15, 2004, respectively, seeking technical information and data on the conditions of Washington's surface waters. Data received during these "call for data" periods and data collected by Ecology were used to develop two draft Integrated Reports (IR) and 303(d) lists. The draft 2002 IR 303(d) list and draft 2004 IR 303(d) list and list methodology was released for public review from January 15 to March 15, 2004 and November 3, 2004 to December 17, 2004, respectively, to provide the public an opportunity to look at and comment on the Integrated Report, including the draft 303(d) list. The summary document includes an index of people and organizations who provided comments, copies of comment letters and copies of Ecology's specific letter of response to each commenter. Washington received 45 written comment letters from individuals and organizations.

Ecology revised their list methodology, WQP Policy 1-11 and held a public comment period from May 10, to July 8, 2002. During the public notice for the list methodology, eight public workshops were held throughout the state between June 5 and June 27, 2002. Washington summarized written and oral comments received in a document titled "Responses to Comments on the Draft Water Quality Program Policy 1-11: Assessment of Water Quality for the Section 303(d) List." The summary document includes an index

of people and organizations who provided comments, a summary of each comment and its response.

C. EPA's Review Process

EPA received Washington's Final 2002/2004 303(d) List as a hard copy on June 3, 2005. EPA also reviewed an on-line version of Ecology's database, which is available via Internet at: http://www.ecy.wa.gov/programs/wq/303d/2002/2002-index.html. The final 2002/2004 303(d) list submittal included the following supporting documentation: Integrated Report, Listing Methodology, a summary of Public Comments with Ecology's response for both comment periods of the IR and List Methodology, and Priority Ranking and Targeting. The Integrated Report indicates what information was considered and what actions were taken. Ecology provided a hard copy spreadsheet of all the water bodies that were de-listed during this cycle of the 303(d) list to make it possible to compare changes between 1998 and 2002/2004 lists.

EPA queried Ecology's on-line database to determine how many waters are included for each parameter. EPA also reviewed Ecology's on-line database to determine waters which had been added to Washington's 2002/2004 303(d) list. The on-line data base allowed greater accessibility to supporting data and records for individual water bodies. EPA extensively reviewed Washington's drafts and final 2002/2004 303(d) lists and numerous versions of the list methodology (pre-public, public and final). In addition, EPA communicated regularly with Ecology and developed an administrative record that includes the draft and final 303(d) list, draft and final list methodologies, prioritization schedule, public notices, e-mails and matrix showing changes between the 1998 list and 2002/2004 lists. Ecology has provided descriptions of the data and information considered and its rationale for the change in their listing policy for identifying waters for listing and removal from the list.

EPA concludes that the State properly assembled and reasonably evaluated all existing and readily available data and information, including data and information relating to the categories of waters specified in 40 CFR 130.7(b)(5). The State provided to EPA its rationale for not relying on particular existing and readily available water quality-related data and information as a basis for listing waters.

D. Waters not required to be listed

1. Waters Not Listed Due to Water Quality Standards Attained. Ecology removed a total of 141 water bodies paired with a pollutant because data and information showed water quality standards were attained. EPA believes Ecology removed these waters from Washington's Section 303(d) list in compliance with Section 303(d) of the Act and 40 CFR 130.7 and in a manner consistent with Ecology's List methodology. EPA concludes Ecology reasonably considered existing and readily available water quality-related data and information and reasonably identified waters to be removed from the list because water quality standards were achieved. Therefore, EPA approves the removal of 141 waters in accordance with 40 CFR 130.7(b)(6).

2. Waters Not Listed Due to TMDLs Approved. Washington has made considerable progress with developing and obtaining EPA approval of TMDLs. For the 2002/2004 list cycle, Ecology included 809 water body segment/pollutant pairs in the "TMDL approved" category based on EPA approval of TMDLs for these water body/pollutant combinations. Washington removed 318 water body segment/pollutant pairs on this basis. Under EPA regulations at 40 CFR 130.7, the 303(d) list is an inventory of water bodies impaired by a pollutant and requiring a TMDL. Thus, EPA approves Ecology's removal from the 303(d) list of 809 water body segment/pollutant pairs with an EPA approved TMDL.

3. Waters Not Listed Because Other Pollution Control Requirements Will Result in Attainment of Water Quality Standards Within a Reasonable Time

The State's decision not to include the waters listed below on its 2002/2004 Section 303(d) list is consistent with EPA regulations at 40 CFR 130.7(b)(1). Under 40 CFR 130.7(b)(1), States are not required to list WQLSs still requiring TMDLs where effluent limitations required by the CWA, more stringent effluent limitations required by State or local authority, or other pollution control requirements required by State, local, or federal authority, are stringent enough to implement applicable water quality standards. The regulation does not specify the time frame in which these various requirements must implement applicable water quality standards to support a State's decision not to list particular waters.

a. Waters Listed in Category 4b

EPA approves Ecology's determination to exclude the twenty-four waterbodies in Table 1 from Category 5 and place those waterbodies in Category 4b of the integrated report. Ecology has demonstrated that there are other pollution control requirements required by State, local or federal authority that will result in attainment of water quality standards within a reasonable time for the waterbodies and associated pollutants listed below. Evaluations of each of the pollution control plans developed for these waterbodies identify the controls to be relied upon; identify the authority under which the controls are required and will be implemented with respect to the sources contributing to the water quality impairment; and document how the control measures are generally applicable to the impairments and can reasonably be expected to reduce pollutant loadings and attain water quality standards.

Table 1
Waterbodies Excluded from Category 5 and Placed in Category 4b

Listing ID	WRIA	Waterbody Name	Pollutant
10375	15	Bear Creek	Fecal coliform
10376	15	Bear Creek	Fecal coliform
10371	15	Burley Creek	Fecal coliform
10370	15	Burley Creek	Fecal coliform
10373	15	Burley Creek	Fecal coliform

23695	15	Dogfish Creek	Fecal coliform
7633	15	Dogfish Creek	Fecal coliform
7640	15	Dogfish Creek	Fecal coliform
7639	15	Dogfish Creek	Fecal coliform
7637	15	Dogfish Creek	Fecal coliform
7636	15	Dogfish Creek	Fecal coliform
38540	15	Dogfish Creek, E.F.	Fecal coliform
38544	15	Dogfish Creek, W.F.	Fecal coliform
7641	15	Gamble Creek	Fecal coliform
7643	15	Gorst Creek	Fecal coliform
7651	15	Martha-John Creek	Fecal coliform
7653	15	Martha-John Creek	Fecal coliform
7652	15	Martha-John Creek	Fecal coliform
10389	15	Purdy Creek	Fecal coliform
10387	15	Purdy Creek	Fecal coliform
8713	15	Sinclair Inlet	Total PCBs
19868	26	Yellowjacket Creek	Temperature
19869	26	Yellowjacket Creek	Temperature
3731	46	Entiat River	Temperature

Monitoring should be scheduled for these waters to verify that the water quality standard is attained as expected in a reasonable time frame. Where standards will not be attained through implementation of the requirements listed in 40 CFR 130.7(b)(1) in a reasonable time, it is appropriate for the water to be placed on the Section 303(d) list to ensure that implementation of the required controls and progress towards compliance with applicable standards is tracked. If it is determined that the water is, in fact, meeting applicable standards when the next Section 303(d) list is developed, it would be appropriate for the State to remove the water from the list at that time.

EPA commends the Gifford Pinchot Forest Service, the Kitsap County Surface and Storm Water Management Program, and the Entiat WRIA Planning Unit for their focused and effective watershed planning and implementation activities. As funding is secured to improve water quality for the Lower Cispus waterbodies that were not included in category 4(b), we encourage resubmittal of those restoration plans to Ecology for consideration during the next listing cycle.

b. Waters Listed For Contaminated Sediments in category 4(b)

Waterbody locations that exceed the cleanup screening level and have a cleanup plan under the State's Model Toxics Control Act (MTCA) regulations or the federal Comprehensive Environmental Response Compensation and Liability Act (CERCLA) regulations are being appropriately placed in category 4b. It is EPA's determination that the regulatory structure and requirements of these two complementary statutes fully meet the requirements of 4b criteria for these 15 waterbody locations and are properly removed from the Contaminated Sediment Category 5, 303(d) list.

Table 2
Contaminated Sediments Excluded from Category 5 and Placed in Category 4b

WRIA	Waterbody	Documentation	Parameters
1	BELLINGHAM BAY (INNER) AND WHATCOM WATERWAY Grid cell: 48122H4F9	Toxic Cleanup Plan's (TCP's) Sediment Cleanup Status Report (pub # 05-09-092) June 2005, Table 9 on page 21 Title I & J Waterway Site-Bellingham, September 2005	2,4-Dimethylphenol; 2-Methylnaphthalene; Acenapthene; Anthracene; Arsenic; Benz(a)anthracene; Benzo(a)pyrene; Benzo(b,k)fluoranthenes; Benzo(ghi)perylene; Bis(2-ethylhexyl)phthalate; Chrysene; Copper; Dibenz(a,h)anthracene; Dibenzofuran; Fluoranthene; Fluorene; Indeno(1,2,3-cd)pyrene; Lead; Mercury; PCBs; Pentachlorophenol; Phenanthrene; Phenol; Pyrene; Zinc
1	BELLINGHAM BAY (INNER) AND WHATCOM WATERWAY Grid Cell: 48122H5C1	TCP's Sediment Cleanup Status Report (Pub # 05-09-092), June 2005, Table 9 on page 21 Title: Port of Bellingham Harris Ave Shipyards Agreed Order, June 10, 2003	2,4-Dimethylphenol; 2-Methylnaphthalene; Acenapthene; Anthracene; Arsenic; Benz(a)anthracene; Benzo(a)pyrene; Benzo(b,k)fluoranthenes; Benzo(ghi)perylene; Bis(2-ethylhexyl)phthalate; Chrysene; Copper; Dibenz(a,h)anthracene; Dibenzofuran; Fluoranthene; Fluorene; Indeno(1,2,3-cd)pyrene; Mercury; Pentachlorophenol; Phenanthrene; Phenol; Pyrene; Zinc
9	DUWAMISH WATERWAY AND RIVER TRS 24N-04E-18, 24N-04E-19, 24N-04E-20	TCP's sediment Cleanup Status Report (pub # 05-09-092), June 2005, Table 12 on page 27 Title: Lower Duwamish Waterway Source Control Action Plan for the Duwamish/Diagonal Way Early Action Cleanup, Jan 2005	Total PCBs
9	DUWAMISH WATERWAY AND RIVER TRS 24N-04E-19	TCPs Sediment Cleanup Status Report (pub # 05-09-092) June 2005, Table 12 on page 27 Title: ARCO Bulk Fuel Storage Facility- Harbor Island, June 30,	1,2,4-Trichlorobenzene; Hexachlorobenzene

WRIA	Waterbody	Documentation	Parameters
		2000.ame as above	
9	DUWAMISH WATERWAY AND RIVER TRS 24N-04E-19	Same as above	1,2,4-Trichlorobenzene
9	ELLIOTT BAY Grid cell: 47122F315 Site names: EB1, EB2, EB11 - Harbor Island West Waterway EB3, EB 10 Todd/Lockheed	TCPs Sediment Cleanup Status Report (pub) # 05-09-092) June 2005, Table 13 on page 29	LPAH; Phenol; 1,4-Dichlorobenzene; Diethyl phthalate; 2,4-Dimethylphenol; Dimethyl phthalate; Copper; Butylbenzyl phthalate; Chrysene; BENZO(A)ANTHRACENE; Dibenz(a,h)anthracene; 4-Methylphenol; Dibenzofuran; N-nitrosodiphenylamine; Acenaphthene; 1,2,4-Trichlorobenzene; Benzo(g,h,i)perylene; Benzo(a)pyrene; Hexachlorobenzene; Cadmium; 1,2-Dichlorobenzene; Fluorene, Indeno(1,2,3-cd)pyrene, 2-Methylphenol, Pentachlorophenol, Bis(2-ethylhexyl)phthalate, Mercury, Hexachlorobutadiene
10	COMMENCEMENT BAY (INNER) Grid Cell:47122C4G3	TCP's Sediment Cleanup Status Report (pub # 05-09-092), June 2005, Table 11 page 25	Arsenic; Dibenz(a,h)anthracene; Dibenzofuran; Dimethyl phthalate; 1,2-Dichlorobenzene; Butylbenzyl phthalate; 1,4-Dichlorobenzene; Hexachlorobutadiene
10	COMMENCEMENT BAY (INNER) Grid Cell: 47122C4H1	TCP's Sediment Cleanup Status Report (pub # 05-09-092), June 2005, Table 11 on page 25	Silver; Lead; Dibenz(a,h)anthracene; Mercury; Pentachlorophenol; 2-Methylphenol; Indeno(1,2,3-cd)pyrene; Bis(2-ethylhexyl)phthalate; Hexachlorobutadiene
13	BUDD INLET (INNER) Grid Cell: 47122A9E0	TCP's Sediment Cleanup Status Report (pub # 05-09-092), June 2005, Table 19 page 40. Title: Cascade Pole Olympia, June 2004	1,2,4-Trichlorobenzene; Hexachlorobenzene
13	BUDD INLET (INNER) Grid Cell: 47122A9E1	TCP's Sediment Cleanup Status Report (pub # 05-09-092), June 2005, Table 19 page 40 Title: Cascade Pole Olympia, June 2004	Hexachlorobenzene; 2,4-Dimethylphenol; Cadmium
13	BUDD INLET (INNER) Grid Cell:I 47122A9F0	TCP's Sediment Cleanup Status Report (pub # 05-09-092), June 2005, Table 19	Hexachlorobenzene; 1,2,4-Trichlorobenzene; Pentachlorophenol; Butylbenzyl phthalate

WRIA	Waterbody	Documentation	Parameters
		page 40 Title: Cascade Pole Olympia, June 2004	
13	BUDD INLET (INNER) Grid Cell # 47122A9F1	TCP's Sediment Cleanup Status Report (pub # 05-09-092), June 2005, Table 19 page 40 Title: Cascade Pole Olympia, June 2004	2,4-Dimethylphenol;2,4-Dimethylphenol; Bis(2-ethylhexyl)phthalate; 4-Methylphenol
13	BUDD INLET (INNER) Grid Cell: 47122A9G0	TCP's Sediment Cleanup Status Report (pub # 05-09-092), June 2005, Table 19 page 40 Title: Cascade Pole Olympia, June 2004	Benzyl alcohol; 2,4-Dimethylphenol; 1,2-Dichlorobenzene; 1,2,4-Trichlorobenzene; Sediment Bioassay; Hexachlorobenzene; 2-Methylphenol
15	LIBERTY BAY Grid Cell: 47122H6A1	TCP's Sediment Cleanup Status Report (pub # 05-09-092), June 2005, Table 16 page 35	N-nitrosodiphenylamine; 2-Methylphenol; 1,2-Dichlorobenzene; 1,2,4-Trichlorobenzene; Pentachlorophenol; Hexachlorobenzene; 2,4-Dimethylphenol; Hexachlorobutadiene; Benzyl alcohol; 1,4-Dichlorobenzene; Bis(2-ethylhexyl)phthalate
15	PORT ORCHARD, AGATE PASSAGE, AND RICH PASSAGE Grid Cell: 47122F6F2	TCP's Sediment Cleanup Status Report (pub # 05-09-092), June 2005, Table 16 on page 35	Benzyl alcohol; Hexachlorobenzene; Hexachlorobutadiene; Silver; Mercury; 1,2,4-Trichlorobenzene; 1,4-Dichlorobenzene; 2-Methylphenol; 1,2-Dichlorobenzene; 2,4-Dimethylphenol

EPA approves Ecology's determination to exclude the 15 waterbody locations in Table 2 (above) from Category 5 and place those waterbodies in Category 4b of the integrated report. Ecology has demonstrated that the state and federal clean up programs, MTCA and CERCLA, respectively, contain the requirements to meet the category 4b criteria, including that there are other pollution control requirements required by State, local or federal authority that will result in attainment of water quality standards within a reasonable time for the waterbodies and associated pollutants listed below. Each of the pollution control plans developed for these waterbodies identify the controls to be relied upon; identify the authority under which the controls are required that will be implemented with respect to the sources contributing to the water quality impairment; and document how the control measures are generally applicable to the impairments that can reasonably be expected to reduce pollutant loadings and attain water quality standards. The enforcement authorities and requirements are under the State's Model Toxics Control Act (MTCA) WAC 173-340 and federal Comprehensive Environmental

Response Compensation and Liability Act (CERCLA) Title 42 CFR 103 cleanup programs.

4. Waters not Listed Because No Pollutant Causes the Impairment

In 2002, Ecology decided to not list 100 Water Quality Limited Segments (WQLSs) beyond those that are required by EPA regulations, e.g., waters where there is no known pollutant associated with the impairment, namely impairments to fish habitat, instream flow, bioassessment, and invasive exotic species. Neither the State nor EPA has an obligation under current EPA regulations to develop TMDLs for such waters because the waters are not known to be impaired by a pollutant. Where data was available, Ecology analyzed that data. Where the data indicated a pollutant is the stressor, Ecology listed that water body segment/pollutant pair for the pollutant parameter. EPA agrees with Ecology that when the impairment is not due to a pollutant but caused by pollution than these waters need not be listed in Category 5 and should be placed in Category 4c, Waters Impaired by a Non-pollutant. EPA approves Ecology not listing water segments where it has been determined that no pollutant is causing the impairment.

In one instance, Ecology did not list 29 water segments proposed by Clallam County Streamkeepers organization because the biological data provided suggested impairment of uses but did not identify whether a pollutant is the cause of the impairment. Ecology originally placed all streams with only biological data in Category 4c instead of Category 2. EPA requested that Ecology list these water bodies in Category 2, Waters of Concern, with a commitment to do follow-up monitoring to establish whether a pollutant is the cause of the impairment. Ecology complied with this request. If by the next listing cycle, 2006, Ecology has not obtained the necessary information as to whether these waters are impaired due to a pollutant, or established a policy on how to evaluate biological data, then these waters should be included on the Category 5 list, consistent with the EPA 2006 IR Guidance.

5. Water segments removed from the list or not listed because they are in compliance with the natural conditions water quality standards.

The term natural condition describes the quality of water that exists in the absence of human-caused pollution or disturbance. Ecology has demonstrated for the categories of waters discussed below, why it is reasonable to conclude that natural conditions are the basis of the exceedence. When the natural condition exceeds the numeric criteria for temperature and dissolved oxygen, the standard then allows a small exceedence of the natural condition. Therefore, EPA approves not listing (or removing) these waters from the 303(d) list based on the operation of the natural condition water quality standards cited in section a. below "Marine waters not listed due to natural conditions."

a. Marine waters not listed due to natural conditions

EPA has determined that the state of Washington has appropriately not listed 209 water segments and delisted 5 water segments from the 2002/2004 Section 303(d) list because the applicable standard for these marine waters is the natural condition. The bases for not

listing these waters are briefly summarized below. Additional information can be found in a memo which discusses the natural conditions issues in the WA 2002/2004 Section 303(d) list. (9/30/2005: Memorandum to File, Walsh, D.)

The criteria for marine waters for dissolved oxygen and temperature vary according to the class of the water. As per WAC 173-201A-030(1)(c)(ii)(B) for Class AA (extraordinary) waters, the dissolved oxygen shall exceed 7.0 mg/L; WAC 173-201A-030(2)(c)(ii)(B) for Class A (excellent) waters, the dissolved oxygen shall exceed 6.0 mg/L; WAC 173-201A-030(3)(c)(ii)(B) for Class B (good) waters, the dissolved oxygen shall exceed 5.0 mg/L; and WAC 173-201A-030(4)(c)(ii) for Class C (fair) waters the dissolved oxygen shall exceed 4 mg/L. The standards also state for each class of water "When natural conditions such as upwelling, occur, causing the dissolved oxygen to be depressed near or below [the criterion for that class of water], natural dissolved oxygen levels may be degraded by up to 0.2 mg/L by human caused activities." The waters discussed in sections 1 and 4 below are Class AA waters. The exceedences are believed to be caused solely by natural conditions, but the waters are being placed in Category 2 until this can be confirmed for each specific water.

The criteria for temperature for each of the classes of marine waters are: for Class AA (extraordinary) waters the temperature shall not exceed 13.0°C; for Class A (excellent) waters the temperature shall not exceed 16.0°C; for Class B (good) waters the temperature shall not exceed 19.0°C; and for Class C (fair) waters the temperature shall not exceed 22.0°C. The standards also state for each class of water "When natural conditions exceed [the criterion for that class of water], no temperature increases will be allowed which will raise the receiving water temperature by greater than 0.3°C." The waters discussed in sections 2 and 3 are Classes AA, A, and B and are being placed in Category 1.

1. Natural conditions (ocean influences) for Dissolved Oxygen

Forty-two water segments are not being listed for dissolved oxygen in this category. These waters are specified as Class AA so the criterion is dissolved oxygen shall exceed 7.0 mg/L. These water segments are subject to incursions of upwelled, low DO waters. Point Jefferson has historically been used to represent water mass properties of the main basin of Puget Sound and was used here to represent the 42 water segments in the main basin. Ecology provided data showing that low DO waters have occurred since records have been kept at Point Jefferson (beginning in the 1930s). They also showed that the low levels of DO at Point Jefferson are in sync with the low levels of DO at two seaward stations demonstrating that the water off of Point Jefferson is being replaced, through upwelling, by low DO water from the ocean. EPA approves Ecology's assessment that the low DO in these waters is a natural condition and the natural condition is the applicable standard.

2. Natural conditions for temperature

Eighty water segments are not being listed and one water segment is being delisted for temperature due to the natural condition Ecology calls "insufficient human influences". These sites are specified as Class AA, A or B and represent large unenclosed or semi-

enclosed waterbodies with sufficient thermal mass and large-scale circulation such that there are no identifiable human influences which are capable of producing the observed temperature exceedances. Therefore, Ecology is reasonably in assuming that their exceedences are due to natural conditions and not due to anthropogenic sources. EPA approves Ecology's not listing these waters based on the conclusion that the exceedances of the temperature criterion in these waters is caused by a natural condition.

3. Natural conditions (thermal warming) for temperature

Eighty-four water segments are not being listed and 3 water segments are being taken off the 303(d) list for temperature in this category. These are small and/or shallow enclosed waters with low flushing rates that warm up naturally from thermal energy from the sun. Though the temperature increases may be completely natural, it is also possible that human activities could have increased the temperature of the waters, therefore these waters were placed in Category 2. Ecology has agreed to do more research to determine the kinds of human activities in the watersheds that could affect the temperature and to collect more data (such as sedimentation rates) that can be used to determine if the temperature of these waters is also affected by human activities. As this research is done, these waters will be moved to either Category 5 if human influences are found or Category 1 if no human activities are found to influence the waters.

4. Other natural conditions designations

There are 4 water segments for dissolved oxygen in this category that are not being listed. The waters are Balch and Cormorant Passages (listing identification number 10222), Case Inlet and Dana Passage (10196), Nisqually Reach , Drayton Passage (10225) and Saratoga Passage (10135). These sites represent large volumes of water going in and out of narrow channels with the tide. Because these waters are very well mixed and composed of large volumes of water, they are not expected to be affected by localized degradation of DO. Though these waters are not believed to be influenced by human actions, Ecology put these waters in Category 2 and will move them to Category 1 or Category 5 as more research is done.

b Waters not listed for arsenic due to natural conditions

The narrative water quality criteria for arsenic, a toxic, incorporates comparison to natural background: WAC 173-201A-040 (1) "Toxic substances shall not be introduced above natural background levels in waters of the state which have the potential either singularly or cumulatively to adversely affect characteristic water uses, cause acute or chronic toxicity to the most sensitive biota dependent upon those waters, or adversely affect public health, as determined by the department."

Ecology evaluated whether certain marine waters listed in the 1998 303(d) list for non-attainment of the EPA human health criterion for arsenic were in fact impaired. The listings were based on total arsenic concentrations measured in edible tissues from various fish, clam, and crab species. Ecology's criterion for inorganic arsenic in edible fish and shellfish tissue is 0.006 µg/g wet weight, calculated as the product of the EPA's bioconcentration factor (44L/Kg) and water column criterion (0.14 µg/L). Although this

criterion is for inorganic arsenic, it had been Ecology's practice to list waters based on total arsenic data.

Ecology believed that the levels of arsenic found in the 303(d) listed waters reflected natural levels of arsenic in fish and shellfish in these marine waters. To test this hypothesis, Ecology measured arsenic levels in fish and shellfish tissue in a number of reference sites unaffected by anthropogenic sources. In December, 2002, Ecology published a study titled "Inorganic Arsenic Levels in Puget Sound Fish and Shellfish from 303(d) Listed Waterbodies and Other Areas" (Publication No. 02-03-057) which showed that the inorganic arsenic concentrations in clam and crab tissue in reference sites were in the same range as inorganic arsenic concentrations in clam and crab tissue in 303(d) listed waters. Twenty water segments (5 waters) were taken off the 303(d) list for arsenic. Thirteen water segments were not listed for arsenic. Two additional waters were not listed for arsenic because they were the reference sites with no known human sources of arsenic. One water was put in Category 4b since the CERCLA work cleaning up the sediments should remove the only known human source of arsenic. EPA has determined that the state of Washington has appropriately not listed or delisted these water segments on their 2002/2004 Section 303(d) list because the inorganic arsenic tissue concentrations were shown to be exceedences due to a natural condition by comparing these arsenic levels to arsenic levels at reference sites. Therefore, EPA approves Ecology's not listing these waters based on the conclusion that the exceedances of the arsenic criteria in these waters is caused by a natural condition.

E. An Analysis of Waters Removed from Washington's 2002/2004 303(d) List

Just Cause for not listing specific waters

There are 2372 water body segment/pollutant pairs on the 2002/2004 IR 303(d) list. Ecology added 1535 water body segment/pollutant pairs during the 2002/2004 IR 303(d) list cycle. The State has added 1535 water body segment/pollutant pairs and demonstrated good cause for not including 921 previously-listed water body segment/pollutant pairs on its 2002/2004 303(d) list. As provided in 40 CFR 130.7(b)(6)(iv), EPA requested that the State demonstrate good cause for not including these waters.

1. Waters Removed Due to Flaws in the Original Analysis.

Consistent with 40 CFR 130.7(b)(6)(iv), EPA concludes that Ecology provided "good cause" for the decisions to remove 273 waters segments paired with a pollutant. An aspect of good cause is a "flaw in the original analysis that leads to the water being listed in the categories at 130.7(b)(5)." Ecology removed these water segments paired with a pollutant from the 303 (d) list due to flaws in the original analysis, due to technical listing errors, such as accidental comparison to incorrect criteria, sampling error and duplicate records. Therefore, EPA approves the delisting of these 273 water segments paired with a pollutant.

2. Waters Removed Due to Inadequate Data

Consistent with 40 CFR 130.7(b)(6)(i)&(iv), EPA concludes that Ecology provided "good cause" for not including waters on the list during this listing cycle because the data analysis is not consistent with the required adequacy of data described in Ecology's methodology used to develop the list. An aspect of good cause includes, but is not limited to, more recent or accurate data; more sophisticated water quality modeling; flaws in the original analysis that led to the water being listed in the categories in 130.7(b)(5)." Ecology's rationale for removing 486 water segments paired with a pollutant from the 303(d) list is based on Ecology's recent change in List Methodology from the 1998 303(d) list. EPA requested that Ecology provide "just cause" by discussing the rationale for the change in their List Methodology and the basis for removing these waters. Ecology included documents in their final submittal discussing their basis for their 2002 list methodology. Below are the changes and EPA's basis for approving Ecology's removal of the waters for which Ecology has provided appropriate rationale for not listing waters based on their new policy and de-listing just cause.

a. Just Cause for removing 66 water segments paired with a pollutant listed for pH, Nutrients, Turbidity, Total Dissolved Gas because of inadequate data based on application of a Binomial Distribution

EPA has determined that the state of Washington has appropriately used the statistical approach of binomial distribution to characterize and manage risk in certain 303(d) listing decisions. Therefore, EPA approves Ecology's delisting water segments with a pollutant which do not have sufficient statistical data to reliably demonstrate an exceedence of conventional pollutants, not including temperature, dissolved oxygen and fecal coliform, based on the use of binomial distribution.

The binomial distribution is commonly used to analyze information from yes/no or hit/miss tests. In the case of 303(d) information, the state is analyzing discrete samples from a water body and counting the number of samples that exceed the relevant water quality standard (a "hit") and the number that do not (a "miss"). The binomial distribution can be used to characterize the probability that a waterbody exceeds standards given a certain percentage of hits out of the total number of samples. EPA believes Ecology has appropriately limited the binomial distribution approach to water quality standards parameters that present a simple hit/miss test. The approach is not used for water quality parameters that have natural and seasonal variability, such as temperature and dissolved oxygen, nor is it used for parameters such as toxic pollutants that have the potential to adversely affect characteristic water uses, cause acute and chronic conditions to the most sensitive biota, or adversely affect public health toxic pollutants.

In order to use the binomial distribution in listing decisions, the state must decide upon its desired level of confidence in the listings, particularly when the data is very limited. There are two potential errors to consider: (1) listing a water body when it does not in fact exceed standards (i.e., false positive), and (2) not listing a water body when in fact it exceeds standards (false negative). To date, EPA has issued no guidance or

recommended a range of confidence levels to address these uncertainties. The state has elected to apply a confidence level that minimizes false-positive listings, and this necessarily leads to a higher probability of false-negative (or omitted) listings.

In this case, EPA has determined that the use of a Binomial Distribution is reasonable in order to ensure the accuracy of impairment determinations when limited data is available. EPA agrees with Ecology de-listing waters and moving them to Category 2, "waters of conern" of the IR, so that more focus can be put on these waters for additional monitoring before these waters are listed as impaired and in need of a TMDL. It is important that Ecology continue to monitor and collect additional data for waters identified in Category 2 in order to accurately assess their status.

It is Ecology's goal to not list waters that are not impaired. Their assessment challenge is to determine, with limited amount of sample data, whether an apparent violation of standards warrants listing a segment as impaired. It is true that an occational violation, even from an anthropogenic source, may not be detrimental to uses of an aquatic environment. Therefore, when considering what assessment method to use, it is reasonable to take a statistical approach to account for the probability of errors. Ecology has been selective as to what parameters to use in this statistical approach and EPA agrees with the parameter choices and the decision to not include DO, temperature or toxics. Using the binomial distribution approach greatly reduces the error of listing false positives, as shown in a paper published in Environmental Science and Technology (Smith et al, Feb. 2001).

EPA agrees with Ecology's statistical approach in analyzing waters with small data sets. In using the binomial approach Ecology can avoid listing waters that are not impaired and with small data sets move the water bodies from category 5 to Category 2, Waters of Concern, where more data can be gathered to determine a more accurate condition of the water body.

b. Just Cause for removing 147 water segments paired with a pollutant listed for Temperature and Dissolved Oxygen (DO) because of inadequate data.

EPA has determined that the state of Washington has appropriately de-listed water bodies for temperature and DO due to failure of data to show that there is a persistent problem with these parameters, and more data is required to establish impairment. Therefore, EPA approves Ecology not listing water bodies unless there is adequate data to reliably show exceedence of a water quality standard. Ecology has not listed waters unless they can reliably identify a persistent problem. *Persistent is defined* in this case for seasonal parameters, temperature and DO as data showing an exceedence over multiple years during the same season, Summer and/or Spring as opposed to data gathered over one entire year to show a consistent exceedence of a nonseasonal parameter's water quality standard, such as pH and turbidity. EPA agrees with Ecology that data covering 3 years is a reasonable requirement to demonstrate a persistent impairment.

The parameters of temperature and dissolved oxygen differ from the other conventional pollutants because they are seasonally variable and because they always exist in the water and become pollutants only when there is too much or too little of them. The water quality standards are designed to address the highest temperatures of the year and the lowest dissolved oxygen levels of the year, which both generally occur during summer months, or sometimes in the fall months for dissolved oxygen. Therefore, the assessment decision is based on the highest and lowest measurements of these pollutants, respectively, not on year-round measurements. The Binomial Distribution, which uses year-round measurements would not be appropriate for these parameters.

EPA has determined that it is reasonable of the State to use the two monitoring regimes described below to provide a much greater assurance that an actual impairment exist. Ecology's Water Quality Program (WQP) Listing methodology Policy 1-11 sets the "7-Day Average of the Daily maximum" or "7-DADmax as the standard for measuring temperature and the "7-Day Average of the Daily minimum" or "7-DADmin as the standard for measuring dissolved oxygen. Ecology's Policy 1-11 also allows the use of grab samples but there must be at least 3 years of data with at least one grab sample per year before a persistence of impairment is shown.

The policy also requires data from multiple years to establish whether a single grab sample violation indicates an impairment. Requiring multiple years of data was intended to provide a more reliable amount of data to ensure the validity of the exceedence as an impairment. Monthly samples taken in the course of the same year may merely reflect an extremely hot year. In effect, additional years' worth of samples act as a replicate set, testing the validity of the exceedences measured in the first year. Ecology requires three years of data to show a persistent impairment of a water body.

Three hundred forty-five water segments paired with a pollutant with less data than Ecology's policy requires were removed from the 303(d) list and moved to Category 2, Waters of concern. Ecology will be able to prioritize these waters and gather more data to determine if they are really impaired.

EPA concurs that if there is less data available than stated in the above paragraphs then this would be insufficient data to reliably determine an impairment of the water body. However, EPA believes since there is data available even though it is insufficient to determine impairment, the waters should be placed in category 2, "waters of concern" until sufficient data is gathered to evaluate impairment consistent with Washington's listing methodology.

3. Waters Delisted for Contaminated Sediments Based on Clarification of Washington Sediment Standards

In this 2002/2004 Integrated Report, Washington is correcting the previous listings on the 303(d) list of waters based on contaminated sediment data. Washington has clarified that not all waterbodies for which there is data suggesting the potential presence of contaminated sediments is appropriate for listing on the 303(d) List (category 5). This is

because Washington's Sediment Management Standards are structured differently than ambient surface water quality standards, and, more importantly, sediment quality standards were never established based on a cause and effect relationship between sediments and the water column. In previous 303(d) lists, Ecology and EPA listed waterbodies when there was an exceedance of the sediment quality standard (SQS). EPA and DOE incorrectly assumed that SQS levels were the equivalent of a "not to exceed" criteria for surface waters. However, the sediment standards, which apply to pollutant levels in bottom sediments and not water column, actually identify two levels of pollutant contamination. The sediment quality standard is the level that triggers further assessment to verify impairment. The cleanup screening level (CSL) is the actual level that signifies impairment. Therefore, a single exceedance of the SQS does not have the same significance as the exceedance of a surface water quality criteria and should not have been considered as an impairment of a water sufficient to list on the 303(d). Rather it is simply an indicator that further evaluation is appropriate to determine whether an impairment of sediment quality exists.

Consequently, Ecology has moved 32 locations from Category 5 to Category 2, Waters of Concern. EPA approves the delisting of these waters based on Ecology's corrected interpretation of its contaminated sediment standard.

Fifty-six waterbodies paired with a pollutant that exceed the cleanup screening level (CSL) consistent with the protocols in the Sediment Management Standards are being listed in Category 5 because this level of exceedance is indicative of impairment that, while not equivalent to an exceedance of a water quality criteria in the water column, is an indication of a pollutant problem that needs to be remedied.

II. Priority Ranking and Targeting

EPA also reviewed the State's priority ranking of listed waters for TMDL development as per 40 CFR 130.7(b)(4) "shall include a priority ranking for all listed water quality limited segments still requiring TMDL", and concludes that the State properly took into account the severity of pollution and the uses to be made of such waters. EPA reviewed the State's identification of WQLSs targeted for TMDL development in the next two years, and concludes that the targeted waters are appropriate for TMDL development in this time frame. In prioritizing and targeting waters, States must, at a minimum, take into account the severity of the pollution and the uses to be made of such waters. See Section 303(d)(1)(A). As long as these factors are taken into account, the Act provides that States establish priorities.

Ecology fully describes its prioritization process and ranking in a document submitted to EPA with its final 303(d) list submission. A Memorandum of Agreement was signed by Ecology and EPA on how Ecology will conduct TMDLs on a watershed basis provides the schedule for completion of TMDLs. This process is described in detail on page 32 of Ecology's listing policy and in section II of the Memorandum of Agreement between between EPA and Ecology signed October 29, 1997.